Internationalisation of the Indian Telecommunication Industry (1947-2004): A Firm-Level Perspective

Abstract

While the importance of the telecom revolution in India has been recognised, little attention has been paid to the diverse international influences at the firm level. This paper addresses this gap by developing a firm-level framework, drawing on the resource-based view, institution-based view and the knowledge-based view of the firm, and by drawing on data related to the various foreign firms' entry strategies during the pre-liberalization period (1980-1991) and the liberalization period (1991-). The paper demonstrates that the two periods required foreign firms to have different capabilities to enter the Indian telecom industry. The paper also sheds light on the international knowledge transfer process in Indian telecommunications industry with specific focus on the differences between different foreign country firms.

Keywords – telecommunication, India, organization capabilities, internationalization, strategy

Introduction

The Indian telecommunications revolution has been a significant success story of India's liberalisation in the 1990s and its rise as one of the fastest growing economies in the world (Panagariya 2008). Telephone density, or teledensity, the number of telephones per 100 people, provides an aggregate measure of the state of telecommunications in a country. The increase in teledensity in India demonstrates India's telecom revolution. Teledensity in 1980-81 was 0.3 and increased marginally to 0.7 in 1990-1991. In comparison, the following decade saw a marked improvement. Teledensity increased to 1.3 in 1995, and with the entry of private mobile telecom companies in the latter half of 1990s, was 4.3 in 2000-01. The following decade saw a remarkable rise to 52.74 in 2010 (Panagariya 2008, p. 372). By mid-2017, the teledensity was 93.98 (TRAI 2017).[1] Bearing in mind India's large population (over a billion people) and vast geography (over 3 million square kilometres) spread across urban and rural areas, a national teledensity of 93.98 demonstrates the extent to which India is now connected through telecom.[2]

In explaining the transformational story of Indian telecom, much scholarly attention has focused on the role of the state, its economic policies and the deregulation of the telecom sector (Jain 2006; McDowell 1997; Mody 1995; Petrazzini 1996; Sridhar 2011). While this has undoubtedly played a major role, an important part of the story is the contribution of other actors. In particular, we know little about the role of foreign companies in the transformation. Given the broader changes in India's economic liberalisation (Corbridge and Harriss 2013;

[1] Telecom Regulatory Authority of India (TRAI).

[2] Given India's large population spread across urban and rural areas, it is instructive to look at the urban/rural difference in teledensity. By mid-2017, urban teledensity was 172.98 and rural teledensity was 57.73. The Indian telecom sector still has a significant challenge in achieving urban/rural parity.

Panagariya 2008), the role of foreign companies is distinctively different in the time period before liberalisation and after. Post-independence and pre-liberalisation (1947-1991), for the most part India relied upon foreign technology to develop its telecom infrastructure. This changed in the liberalisation period (1991-), starting a multitude of foreign firm influences on the industry.

The central thrust of this paper is to adopt a firm-level perspective on the Indian telecom story. By firm-level, I mean that the focus is on the firm as a bundle of resources and capabilities. Furthermore, I draw on the capabilities literature that highlights the strategic needs of firms in forming alliances and entering new markets. I also draw on the literature on political capabilities of firms to influence the institutional and regulatory environment. By adopting a firm-level perspective, I demonstrate that the Indian telecom story is a story of international technology and knowledge transfer, international joint ventures, financial capabilities and political capabilities of firms. Pre-liberalisation, the relationships between the Indian government and other international governments and institutions played an important role in transferring telecom technology. In this context, the foreign firms relied on their respective governments to lobby and negotiate access to the Indian telecom industry. This changed post-liberalisation. It is the Indian private companies in joint ventures with foreign companies that delivered the infrastructure and connectivity across the vast country. Indian telecommunication changed from being based on outdated and inefficient technology with long waiting lists for telephones pre-1985, to state-of-the-art technology and one of the lowest prices for consumers by 2010. Foreign firms, with their Indian partners, played an important part in enabling this transformation by providing access to technology, capital and business practices.

Unlike Japan's or China's telecom transformations, both of which were driven by limited foreign participation, India's route to a modern telecom industry is the result of global participation. In Japan, the government played an important role in nurturing Nippon Telegraph

and Telephone Company (NTT). Started in 1952, NTT benefitted from the Japanese government's drive towards technological self-sufficiency. By initially importing foreign technology and expertise, and investing in national R&D, Japan steadily moved towards creating its own telecom infrastructure (Anchordoguy 2001). Similarly, in China, the government focused on developing competition between Chinese state-owned enterprises and breaking up the monopoly of China Telecom (Liu and Jayakar 2012; Loo 2004). In contrast, India's telecom industry witnessed global participation during its deregulation.

The 1990s saw the deregulation of the Indian telecommunication sector, which opened the industry to several Indian and foreign private sector companies. There have been several studies into telecom deregulation in India. For example, two key institutional actors, T.H. Chowdary, who drafted the National Telecom Policy 1994 (NTP-94) and was CEO of one of the privatised telecom companies, and M.B. Athreya, who headed an influential committee that reported on restricting the telecom industry, have written several articles on the shift in telecom policy (Athreya 1996; Chowdary 1998a; 1998b; 2004). McDowell's (1997) book provides a detailed analysis of the liberalisation period. His account of the changes in government policies in telecom, and in particular the public narratives surrounding telecom deregulation provide a comprehensive chronology of the events. Panagariya (2008) provides a comprehensive account of India's liberalisation, including the telecom sector. Several studies have also focused on the telecom policies in 1994 and 1999, which aimed to establish the regulatory framework for businesses and the incumbent state monopoly (Dokeniya 1999; Dossani 2002; Mukherji 2009; Singh 2000).

I draw on these studies that focus on the political and institutional arrangements. However, my focus in this paper is on the foreign firms entering India, rather than on the challenges of economic reforms. Whereas previous studies have examined the reasons for the nature and pace of telecom liberalisation, they have not focused on the perspective of foreign

firms looking to enter a deregulated market. Three important exceptions are Subramanian (2010), Desai (2006) and Levi (2007). Subramanian's book on the history of Indian Telephone Industries (ITI) provided useful data on the pre-liberalisation period. While the focus of the book is on the challenges facing ITI, the public sector monopoly for manufacturing telecom equipment, it provided insights into the role of foreign companies in transferring technology. Desai's book provides a comprehensive account of the different Indian and foreign firms operating in India. And Levi's book provides interesting insights into entry strategies of Swisscom, Alcatel, Avaya and First Pacific. Her study demonstrates the need for greater focus on individual firms. These books have provided useful data for charting the trajectories of foreign firms in India. I draw on two other sources to identify foreign firm involvement. The legal battle between the government and various companies over the issue of mobile licences in 1992, and the subsequent court case judgements, provided information of joint-venture partnerships between Indian firms and foreign firms. I also drew on accounts in the Indian newspaper, *The Times of India*, about the entry of foreign firms and their partnerships. The paper has also benefitted from personal conversations with key actors in the industry during the liberalisation of the industry.[3]

Theoretical Background

The firm-level perspective developed in this paper draws on the resource-based view (RBV), institution-based view (IBV), and knowledge-based view (KBV) in strategy and international business. By bringing these literatures together, I develop a firm-level framework to analyse the evolution of the Indian telecommunications industry and to identify the key capabilities

[3] Whilst not systematic data collection, I have benefitted from conversation with Ashok Juneja, ex-CEO of Bharti Broadband and part of the Usha Martin Telecom bidding team.

that led to foreign firm success. I begin by outlining the theoretical background of these literatures and position its potential contribution relative to the telecom industry research.

As a discipline, strategy focuses on the question of why some firms outperform others. The central premise of RBV is that firms differ in their resources and capabilities and these differences are difficult to imitate, copy or replicate for other firms. This explains why some firms have a competitive advantage and achieve superior performance. In other words, valuable, rare, inimitable and organised heterogeneity in resources and capabilities is the cornerstones of RBV (Barney 1996; Peteraf 1993; Wernerfelt 1984). An organisational capability is defined as a firm's capacity to perform an activity reliably over time (Amit and Schoemaker 1993; Collis 1994; Dosi *et al.* 2000; Ethiraj *et al.* 2005). The label, organisational capabilities, can span a wide range of activities that a firm can perform, such as marketing capabilities, operational capabilities, R&D capabilities and so on. For the purposes of this paper, the focus is on financial, technological and joint venture capabilities. By financial capabilities, I mean the capacity of firm to raise capital to fund the telecom installation and expansion. By technological capabilities, I mean the capacity to deliver telecommunication services, which includes telecom equipment manufacture, network infrastructure and client management. And by joint venture capabilities, I mean the capacity to find and partner with other firms. This includes the capability to work with partners on market entry, establishing terms for technology transfer and financing, and once operational, developing a cooperative relationship to establish the business (Barkema *et al.* 1997; Gulati *et al.* 2012; Ireland *et al.* 2002; Schreiner *et al.* 2009).

In recent years several strategy and international business scholars have focused on the institutional conditions informing strategy (Ahuja and Yayavaram 2011; Meyer *et al.* 2009; Peng *et al.* 2009). Under the umbrella of IBV, scholars have theoretically argued and empirically demonstrated that 'institutions directly determine what arrows a firm has in its

quiver as it struggles to formulate and implement strategy, and to create competitive advantage' (Silverman and Ingram 2000, p. 20). This has led to identifying a different category of organisation capabilities, one that focuses on a firm's ability to influence government policies that can lead to competitive advantage. Sometimes labelled non-market strategies, this capability underpins a firm's capacity to engage with rule-makers (Doh *et al.* 2012; Hillman and Hitt 1999; Oliver and Holzinger 2008; Peng 2003). This includes the capacity to influence the formal rules, but more importantly, it also includes the capacity to understand and play by the 'informal rules of the game' (Baron and Diermeier 2007; Bonardi *et al.* 2006; Frynas *et al.* 2006; Henisz and Delios 2004; Henisz and Zelner 2005; Holburn and Bergh 2008; North 1990).

A final capability that informs my firm-level perspective is the capacity of firms to transfer its technology and know-how to other firms. While there is an overlap with the literature on technological capabilities, the inter-organisational knowledge transfer capability is distinct and is based on KBV of the firm that posits that knowledge is the key productive resource that differentiates firms (Grant 1996; Grant and Baden-Fuller 1995; Spender 1996). Based on KBV, the literature on inter-organisational knowledge transfer recognises the importance three key success factors – 1) the nature of knowledge being transferred; 2) the capacities of donor and recipient firms to teach and learn, respectively; and 3) the inter-organisational dynamics. Technology transfer involves tacit and explicit knowledge that a donor firm has. It is not just a case of selling or licensing the technology (explicit knowledge), but the significance of practices and processes that accompany it (tacit knowledge). While some of the practices and processes can be codified and made explicit in training manuals and standard operating processes, a donor firm needs to have the capability to transfer the knowledge by providing training and embedding the technology in a host firm. Equally important is the recipient firm capacity and willingness to learn the new technology. The recipient firm must see the new technology as significant and be motivated to develop its

internal technological capabilities. Here, the inter-organisational dynamics plays an important part in establishing trust and communication between donor and recipient firms. Past experiences and culture matter in establishing successful technology transfer capabilities (Dhanaraj *et al.* 2004; Dyer and Singh 1998; Eisenhardt and Schoonhoven 1996; Lane and Lubatkin 1998; Lucas 2010; Mowery *et al.* 1996).

===Insert Figure 1 about here===

These five capabilities – financial, technological, joint venture, political and inter-organisational knowledge transfer – form the basis of a firm-level framework and play an important role in explaining the success of telecom firms in India. Figure 1 illustrates how these capabilities combine to explain the relationship between donor firms, recipient firms and the government. On the left-hand side, the broad oval-shape indicates the institutional context in the recipient country within which all actors operate. The recipient government represented by the small oval-shape (which is the Indian government in the context of this paper) sets the institutional environment and the policy for telecom firms. The rectangular box represents the firms operating with the country. For this paper, these are the Indian telecom companies. The arrow between the recipient firms and the government indicate the political capabilities of firms to shape and influence government policies. The right-hand side of Figure 1 represents the donor firms and their institutional context. The arrows flowing from the donor firms depict the key capabilities needed for success, which is the focus of this paper.

Empirical Background

The telecommunications industry has played an important role in globalisation in the 1980s and 1990s. Foreign direct investment (FDI) by telecom companies in the 1990s contributed significantly to global corporate activities. For example, the US and European telecom companies invested in 60 countries between 1986 and 1991 (Serrano *et al.* 1991; Thomsen 1997). In explaining the changes in telecommunications, the dominant focus has been on broad

macro issues such as deregulation, globalisation and privatisation of national monopolies. However, a few studies have pointed to the importance of firm-level actions and strategy. Sarkar et al. (1999) identify key strategic drivers at the firm level. They argue that deregulation of the home markets and the loss of monopoly status prompted firms to explore foreign markets that were also deregulating. This enabled firms to transfer their existing technology and know-how to new markets. To benefit from first-mover advantage, firms attempted to establish presence in international markets. A large multinational telecom company also benefited strategically by having economies of scale and influence in terms of global technology standards and developing new technology. Sarkar et al. also highlight that this internationalisation of telecom firms features several joint ventures. As firms addressed the multiple challenges of gaining market entry, investing in new technology and developing costly infrastructure and operations in different countries, they formed various alliances (Jamison 1998). Clifton et al. (2011) build on Sarkar et al.'s firm-level focus to demonstrate that firms from Europe that faced the same regulatory changes followed different internationalisation strategies. This highlights that although deregulation and liberalisation was important, European firms responded differently to these changes. Moreover, they argue that 'significant investment abroad was undertaken both by firms that had experienced substantial inward liberalisation pressures, as well as those who were based in countries where liberalisation lagged behind'. A more recent study by Nevalainen (2017) also demonstrates the role of key strategic actors within the Finnish Post and Telecommunications Department (PTL), the Finnish national carrier. Facing deregulation across Europe, the firm entered 'the nearby areas of the Baltic Countries and north-west Russia in the early 1990s, and only a little later to more distant markets like Hungary and Turkey, in which a small but relatively skilled operator could seize the opportunity' (Nevalainen 2017, p. 375). Focusing on the Indian market, Nayak and Maclean (2013) also point to firm-level activities. Although they focus on the entrepreneurial

field and the role of key actors, they demonstrate the significance of firms such as Bharti Airtel in changing the telecommunications industry in India.

Whereas previous firm-level studies have focused on reasons for companies internationalising from their home countries, the focus of this paper is on the differences at the firm level between various foreign companies. Unlike previous studies that have highlighted firm-level differences in their timing and scope of international activity, the focus here is on one international market - India. The changing nature of the Indian telecom industry provides interesting insights into how different foreign firms approached their entry into the industry.

I divide the paper chronologically: 1) pre-liberalisation (1947-1991); and 2) liberalisation (1991-2005). Within each time period, I focus on three main issues – the government policy related to telecom, which sets the backdrop for the different actors, Indian companies involved and their responses, and foreign firms involved and their engagement. I use the theoretical framework (Figure 1) to analyse firms and demonstrate the significance of the five capabilities. In the final section I discuss the variation in the way different foreign companies engaged with the Indian context and the implications of knowledge transfer, country entry and country exit.

Pre-liberalisation (1947-1991)

India became independent from British rule in 1947. In 1948, the Indian government published its first Industrial Policy Resolution (IRP) in which it divided industry into four main categories - Sole Ownership of the Central Government, Reserved for the Public Sector, Regulated by States, Private sector. These represented the order of importance of the different sectors in terms of government/private ownership. The first category included key security and defence industries such as atomic energy, railways and military equipment. The telecommunications industry was listed in the second category, where the government excluded all private sector involvement. Along with coal, iron and steel, aircraft manufacturing, shipbuilding and

minerals, participation in telecommunications was the sole reserve of the public sector. The telecommunications company at the time of independence, Indian Radio and Cable Communications Limited (IRCC), was nationalised to create the Department of Post and Telegraphy (P&T). This period saw the founding of Indian Telephone Industry (ITI) in 1948 in Bangalore (now Bengaluru), creating a national monopoly in manufacturing telecom equipment. At its inception, ITI, the telecom equipment manufacturer, had some foreign company involvement. The British Automatic Telephone and Electric Company (ATE) held a minority stake in ITI from its inception until 1977 (Subramanian 2010, p. 45).

Recognizing the lack of technical know-how to build a telecommunications network, P&T sent a technical officer to Europe to identify technology partners (Minutes of the Nineteenth Estimates Committee 1957; Subramanian 2010, p. 70). The officer received four offers, but the names and nationality of two of these companies remain unknown. The government considered two offers - one from a Swiss company (name unknown) and the other from ATE. The government also received an offer from International Telephone and Telegraphy (ITT). The decision to award the contract was based on 1) technological capabilities; and 2) price. On both issues, ATE was seen as a better choice, providing favourable terms for the technology licensing and the cheapest bid. The existence of British telecom technology prior to independence also worked in ATE's favour. Prior to independence, ATE had worked with the Indian government to install India's first automatic exchange in 1914. The chief engineer at ATE, Mr A. F. Bennett, had developed the capabilities to negotiate and implement the Strowger technology in the UK, Canada, Poland and Lithuania. Drawing on the old British Empire network, ATE also expanded to South Africa and India (Emerson 1989). ATE and the Indian government agreed a fifteen-year collaboration to transfer the Strowger technology to India. In line with international knowledge transfer theory, ATE sent its staff to design, install and train personnel at ITI. Twenty three employees of ATE were deputed to ITI,

occupying key posts such as works manager, chief inspector, personnel and recruitment, and training. ATE developed 'methodical procedures to regulate all aspects of the factory's activities. The transfer of know-how was thus confined not solely to technical expertise, but also extended to practical expertise pertaining to the overall organisation of work' (Subramanian 2010, p. 73).

In 1964, the P&T engaged in another foreign technology transfer, this time for the production of crossbar switches, with Bell Telephone Manufacturing Company (BTM), which was part of ITT. Although Ericsson and Nippon EC bid for the technology tender, P&T chose BTM because of its low bid and two main capabilities. First, BTM's parent company agreed to provide loans and bought an equity stake in ITI to enable ITI to purchase machinery and finance factory expansion. This cash injection was an important consideration for selecting BTM. Second, BTM was perceived (wrongly, as it turned out) to have the technological capabilities. The committee that recommended BTM stated that BTM had 'vast experience in the manufacture of varied types of telecommunication equipment' (COPU 1975-76 1975, p. 6; cited in Subramanian 2010, p. 89).[4]

In principle, the technology transfer model with BTM was the same as with ATE. BTM was expected to provide the know-how and practical expertise. However, the realities turned out to be very different; the 'crossbar agreement … represented a textbook case of all that went wrong in the diffusion of know-how from a developed to a developing country' (Subramanian 2010, p. 86). BTM faced challenges in coordinating its own operations in Europe and with its parent company. The technology was ill-suited to the Indian conditions, and required adaptation. Managerial practices also suffered because the Belgian managers were not fluent in English (Subramanian 2009, p. 207). In other words, BTM struggled to meet its obligation of providing the crossbar technology, illustrating poor knowledge transfer capabilities.

[4] Committee of Public Undertakings (COPU)

India's reliance on foreign company technology continued in the 1980s. As ITI moved from the crossbar switching technology to electronic switching system (ESS), the foreign technology provider changed. The main foreign company active in the telecom sector in this period was the French government-owned CIT-Alcatel, which provided the technology and the capital to enable India to upgrade its telecom infrastructure. The mode of technology transfer was the same wherein the foreign company would provide the technical know-how and training. Although CIT-Alcatel had not participated in the initial tender process, the contract was awarded to them after discussions at the highest level between the two countries. India also agreed to buy fighter jets and enriched uranium from France at the same time (Ramesh 1982). Technologically, as with the BTM crossbar technology, arguably India did not buy the best ESS technology available at that time. The Ericsson AXE switch was more popular in developing countries in the 1980s (Bhushan 1987; Mani 1989). However, it is the political capabilities of CIT-Alcatel and the Indo-French relationship that proved to be the key capability (French pressure pays off 1982). In contrast to the previous two technology transfer deals (with ATE and BTM), the political capability worked indirectly, mediated by the French government.

Although a state monopoly, telecommunications did not become a strategic priority for the Indian government until the 1980s. Despite the tendencies of state monopolies to resist change, public discourse on the state of telecommunications was shifting towards liberalisation. As Das (2002, p. 208; also cited in Panagariya 2008, pp. 371-371) noted:

> The telephones that existed were not dependable – it was rare to get a number on the first attempt. The employees of the telephone department were arrogant and corrupt. If the lines were down, it could take months to fix unless one bribed the linesman. When an MP complained in Parliament of these breakdowns, C.M. Stephens, Mrs. Gandhi's communications minister, replied that telephones were a luxury, not right, and that anyone who was dissatisfied could return the telephone, because there was an eight-year waiting list for this "broken-down product."

Along with the general public dissatisfaction with the telephone system, the government was also cognisant of the large import bill from the P&T. Struggling to expand its network through equipment supplied by ITI, particularly into rural India, and the lack of

telecom equipment manufacturing capabilities in India, the government had few options but to look at foreign companies for the technology (Taskar 1981). Projects by the P&T to develop switching technology through its Telecom Research Centre were unsuccessful.

In 1981, the government appointed a Committee on Telecommunications, known popularly as the Sarin Committee, to advise on P&T. While the main focus on the committee was on internal issues within the P&T, it was widely seen as an attempt to change the existing status quo within the government ministries (P&T circles worried over Sarin committee appointment 1981). The committee recommended that the P&T be split to separate postal services from telecom services. 1981 also saw the entry of Sam Pitroda, an Indian-born US businessman. His access to the Prime Minister Indira Gandhi, and subsequently to the next Prime Minister, Rajiv Gandhi, led to a shift in government attitude towards technology, from being a luxury to an important role in development (Nayak and Maclean 2013, pp. 11-13). Bypassing the monopoly held by the Department of Telecommunication (DoT), the Indira Gandhi, and subsequently, Rajiv Gandhi, championed the Department of Electronics (DoE) to promote a wide range of electronics products and services. Pitroda set up the Centre for Development of Telematics (C-DOT) in 1984 to develop electronic switches for the Indian condition. C-DOT was quick to involve Indian private sector companies, beginning the partial entry of private Indian firms into the equipment industry (C-DOT vendors talk on digital systems 1985).

This period also saw the attempt to privatise the DoT. In 1986, two corporate entities were created, Mahanagar Telephone Nigam Limited (MTNL), to operate telephone services in Mumbai and New Delhi, and Videsh Sanchar Nigam Limited (VSNL), for overseas telephony (Bombay-Delhi phone corporation 1986). The carving out of two lucrative sectors opened up the potential for foreign firm entry. AT&T/Philips, Alcatel/Thompson and NEC made offers to develop the city networks (Three consortia offer $4B Each 1985). However, the government

chose to create MTNL and VSNL as corporate entities, albeit under the control of the DoT. The aims of the corporate entities were to operate separately from the ministry and to introduce market-oriented and commercial management policies, systems and practices to enable fast growth. It was also seen as a potential model for privatising, which could be replicated across India (Athreya 1996, p. 13). However, the attempt to privatise led to strong opposition and several strikes.

With the convergence of telecom technology with electronics, the DoE was in a position to challenge the P&Ts stronghold on manufacture of telephone handsets and other consumer facing devices. In 1984, the government marked a shift away from the IPR of 1948, which had excluded private sector involvement in telecommunications, by allowing a range of new entrants (Industrial policy change 1984). The DoE set up several State-owned Electronic Development Corporations (SEDCs) to manufacture telephone handsets, fax machines, answering machines and other telecom related equipment. Usha Martin Limited joined with Bihar SEDC to manufacture cables in 1986, collaborating with AEG Kabel from Germany. Himachal Futuristic Communications Limited (HCFL) partnered with the Himachal Pradesh SEDC in 1987 to manufacture cables. They brought in Seiscor Technologies Inc., USA and Philips Kommunikation Industries AG, Germany. Bharti Telecom Limited also started their forays into telecom during this period. They partnered with Siemens AG, Germany, to manufacture push-button handsets in 1985. They also sourced technology for answering machines from Takachiho Corporation, Japan, and cordless telephones from Lucky Goldstar (LG), Korea.

The shift in Industrial Policy in 1984 marks an important, although unanticipated, change in the telecom industry from the point of view of firms. Although telephony and postal services were separated by splitting P&T, the government still maintained the monopoly over the telephone service by creating the DoT and restricting telecom equipment manufacturing to

ITI. However, the move by the DoE to set up SEDCs inadvertently allowed private firms join the industry. Since consumer facing devices, such as handsets, telex machines and answering machines, were seen as luxury goods, the government opened the door to multiple firms. The SEDCs developed joint ventures with private Indian firms that brought in finance, which in turn brought in foreign firms to provide technology. Crucially, this marked the beginnings of Indian firm-foreign firm capability development in telecom.

Liberalisation (1991-2005)

The 1990s was a highly dynamic period in Indian politics and this had a clear impact on the ability of the government to formulate a coherent telecoms policy. In the 1980s the Congress government was in power, led by Indira Gandhi (1980-1984) until her assassination, and by her son, Rajiv Gandhi (1984-1989). However, the 1990s saw seven prime ministers as the balance of power shifted between various political parties. This is important because the telecommunications industry was a key ingredient in political success and patronage nationally. Changes to the telecommunication industry would impact a large number of employees at the DoT and ITI.[5] It was also important internationally, because it enabled powerful ministers and Indian companies to seek patronage from Indian and foreign firms looking to enter the deregulated industry. Furthermore, as an important source of foreign exchange investment, the telecom ministry was a sought-after position in the various coalition governments in the 1990s.[6]

[5] There were a number of strikes at P&T and ITI during this period.

[6] Deregulation of the telecom industry is mired in controversy. Two telecom ministers, Sukh Ram (1993-1996), and A Raja (2007-2010) have been prosecuted of corruption. Because the process of granting telecom licences is set by the telecom minister, and firms are looking for information about the policy, it opened up the potential for corruption and bribery.

The creation of MTNL as a separate corporate entity created significant challenges for the DoT and the government. In 1990, MTNL announced bonuses to its staff. This led to protests from the other employees of the DoT. In response to the employee bonus issue, the government set up a Telecom Restructuring Committee (popularly known as the Athreya Committee) to propose a new structure. While the main recommendations for restructuring faced significant political opposition, the government agreed to allow private companies to enter, what were seen as, 'value-added services'. These were electronic mail, voice mail, data services, audio text services, video text services, video conferencing, radio paging and crucially, cellular mobile telephone. Mobile telephony escaped the political turf-wars because it was seen as a luxury, and that mobile phone calls would be primarily made to fixed-line telephones, thus increasing the traffic to the DoTs monopoly. This resulted in a tendering process in 1992 to grant eight licences, two for each city, for New Delhi, Mumbai, Kolkata and Chennai, to set up mobile phone operations. Although licences were granted, this led to a long-drawn legal battle between the rejected bidders and the government. As India did not have a mobile phone industry, the government stipulated that Indian private companies wishing to bid for licences should have a foreign collaborator with experience and funding to set up the infrastructure. The court cases between India Telecomp Ltd v Union of India in 1993 and Tata Cellular v Union of India in 1994 provides initial evidence of various foreign entrants and their Indian partners (see Table 1).

[Insert Table 1 about here]

The court cases led to some clarity with respect to foreign company participation, particularly in terms of providing technical and financial expertise.[7] For example, Bharti

[7] The DoT invited bids for the first licences for the metro cities on 31/03/1992. The DoT announced the winners on 12/10/1992. Four companies filed writ petitions at the Delhi High

Cellular's foreign partners were SFR, Emtel and Talkland. The court case argued over the telecom expertise necessary to quality for the licences, focusing on the scale of operations of the foreign collaborator. The case also illustrated the importance of foreign collaborators providing all the foreign exchange needed to finance the setup costs. It also clarified the number of joint ventures each foreign collaborator could be part of. For example, Telecom Malaysia had partnered with two Indian companies. The case judgement revealed that this was seen unfavourably by the DoT panel in their shortlisting process.

The legal battles delayed the entry of mobile phone companies until 1995. By this time a National Telecom Policy in 1994 (NTP-94) was created and another round of bidding was initiated, this time for value added services such as mobile phone and for wired telephone services. The 1995 action brought in new foreign partners, but also led to the exit of some. The companies and their Indian/foreign partners awarded licences to operate in New Delhi, Mumbai, Chennai and Kolkata in 1995 were:

[Insert Table 2 here]

Subsequently, as the licences for other regions in India were auctioned, there were more new foreign company entrants in the bidding process. However, during this period, it is difficult

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Court, challenging the decision. On 26/02/1993, the Delhi High Court upheld the challenge from two companies, forcing the DoT to change the companies it granted licences. The resulting changes meant that Tata Cellular lost its licence and, hence, challenged this in the courts. On 26/07/1994, the Supreme Court of India delivered its verdict on the bidding process for the metro licences. The evidence presented in the two cases provided useful data for understand the joint venture partnerships in the bidding process. Since the courts examined and clarified the criteria used for selection, it provided information on the technical and financial capabilities of the foreign partners.

to ascertain if bidding can be seen as entry because the rules for bidding and controversy over the role of government may have persuaded some to exit. For example, several foreign companies, such as Shinawatra, Thailand and Bezeq, Israel partnered with HCFL to bid for eight licences. Furthermore, the relationship between Vanguard, US and BK Modi, who partnered to bid for six licences, strained following the issue of licences and led to a fallout over investments (Tewari 1996). However, it was clear that there was significant interest in bidding for the wider licences from across the globe, in terms of bringing in telecom expertise and equity, as well as finance for infrastructure development. Table 3 provides a list of the foreign companies, divided into telecom and finance capabilities.

[Insert Table 3 about here]

Between 1999 and 2002, several of the licences were traded, which led to exits and consolidation. For firms, the licenses had value irrespective of whether they started operations. This period saw several firms merge and the number of players in the industry reduced. While the challenges of regulatory uncertainty contributed to the consolidations, firms also saw this as an opportunity to value their equity stake in trading their licenses. The relationship between foreign entrants and the Indian partners were strained in some joint ventures, due to differences in strategy (Anand 1996). The DoT also aimed to strengthen the bargaining power of Indian companies by allowing them to change their foreign collaborators (Pandey 1995). The consolidation also made sense in terms of business strategy, benefitting from economies of scale.

In terms of actual operations, the first few companies to launch services were Bharti Cellular, Modi Telstra, Usha Martin, Essar, RPG, Skycell, Hutchinson Max and BPL Mobile, who were granted licences for the major cities (see Table 2). In other words, the foreign collaborators, Hutchinson, France Telecom, SFR, Cellular Communications International,

Malaysia Telecom, Telstra Australia, Bell South, and Vodafone provided the foreign exchange capital and their technical expertise in launching services.

In 1999, India revised its national telecom policy and produced the NTP-99, which provided greater clarity and certainty for firms. It also created a regulatory body, Telecom Regulatory Authority of India (TRAI) and subsequently further clarified its role in dispute resolution.

Differences in Foreign Firms' Entry Strategies

From the viewpoint of foreign firms, the evolution of Indian telecommunication industry from a national monopoly to a liberalised economy with several private sector companies has posed different strategic questions. By adopting a firm-level perspective, I have focused on the role of firms, and in particular foreign firms. We can see that the pre-liberalisation period was one where the political actors were foregrounded and were the key players in the co-evolution of the telecom industry. The Indian government was the sole actor that foreign firms engaged with to get access to the Indian market. Financial capabilities and technological capabilities played an important part, but success rested in demonstrating political capabilities and knowledge transfer capabilities. For example, the French firm, CIT-Alcatel was the one that was able to engage with technology transfer to India through the Indian public sector company, ITI. This technology transfer, brokered at the highest political level, enabled CIT-Alcatel to enter the Indian market. The links between CIT-Alcatel and the French government, and diplomatic relations between Indian and France played an important role in the process of knowledge transfer.

Post-liberalisation, the dynamics within the industry changed dramatically for foreign firms. While the nexus between business and government was still important in terms of understanding the various changes in telecom policy, the main conduit for foreign firms' activities were the Indian private sector companies. The choices made by foreign firms from

different countries, and the route they took to enter the Indian telecom sector were different. In terms of choices for market entry, government regulation stipulated that foreign firms could not engage in the sector without local partners. Hence, the only choice open to foreign firms was the joint venture route. There were two key issues that were pertinent to forming a joint venture: expertise in telecommunications and/or financial clout. Some of the foreign firms that entered the market did so purely in terms of providing finance to their Indian joint venture partner. Others entered with their telecom expertise (see Table 3). Furthermore, the mode of engagement also differed. Some companies chose to adopt a 'hands off' approach, allowing the local partner to manage the operations and the complicated relationship with government officials. Managing the relationship with the DoT and with the regulator, was a specialised capability that foreign firms did not have. Hence, they relied on the local partner to bring this capability. This is where a company like Bharti Airtel was very successful. In contrast, Swiss-PPT chose a much more 'hands on' approach, appointing their own senior team and seeking to increase their equity stake. However, this also led to their quick exit from the industry because they lacked the key capability, of managing the relationship with the government, telecom ministry and the regulator, to operate in the industry.

To appreciate the differences between foreign firms that entered India in the post-liberalisation period, I divide the foreign entrant firms into three categories: European firms (including the UK), US firms and others. The European telecom firms' entry into the Indian market needs to be seen in the context of liberalisation and privatisation in their home countries (Clifton *et al.* 2011; Davids 2005; Hulsink 1999; Kornelakis 2015; McDowell and Lee 2003). During the 1990s the monopoly of national telecom operators was dismantled and the sector faced new entrants into their domestic markets. Table 4 shows the year in which the country liberalised and privatised its telecom operator.

[Insert Table 4 about here]

One of the early entrants was the French national company, France Telecom. In 1994 it entered a joint venture with BPL by taking a 37% stake in BPL Mobile Telecom. The firm won the lucrative Mumbai licence in 1995 and was the leading company, competing against Hutchinson Max. In 2000, France Telecom expanded through a series of acquisitions. One of these was the brand 'Orange', which belonged to Hutchinson. Despite France Telecom owning the brand worldwide, Hutchinson had retained the rights to the brand in India, launching it in 2000. This meant that BPL would be competing with the Orange brand in the Mumbai market. France Telecom tried to increase its stake in BPL. However, it finally exited India in 2004 by selling its stake, unable to consolidate its position in India.

SFR was another early French entrant in 1994. However, they exited early, in 1997, selling their stake to BT. SFR's exit seems to be a result of BT's alliance with Compagnie General Des Eaux (CGE), the owners of SFR (British Telecom picks up 22.5% in Bharti Cellular 1997).

Another European early entrant into the Indian market was the Italian national telecom company, Telecom Italia. Using their Dutch subsidiary STET NV, they partnered with Bharti Airtel by taking a 33% stake in Bharti Telnet and a 20% stake in Bharti Tele-Ventures in 1995/96. As part of their global strategy and in preparation for privatisation, STET expanded its international operations rapidly, including into India (Hill 1995).

Telia, Sweden entered the industry through a joint venture with Parasrampuria Group to form J.T. Mobile, which won the licences to operate in three regions (Karnataka, Andhra Pradesh and Punjab) in 1995. However, significant changes in their home market led to their exit in 2002. During that time, Telia was privatised and merged with the Norwegian company, Sonera, to form TeliaSonera in 2002.

Another early European company to enter the Indian market was Switzerland's national carrier Swiss PTT, renamed Swisscom after privatisation in 1997. In preparation for

competition in its domestic market and the EU in general, Swisscom followed an international strategy and entered several countries in the 1990s, including India. Swisscom partnered with one of the large Indian business houses, Essar, to create Sterling Cellular in 1996. Swisscom invested US$ 215m and provided financial guarantees for its 32.5% stake in Sterling (Swisscom 1997, p. 36). In contrast to the other European companies, Swisscom was keen to have operational control in India. It appointed Swisscom personnel to key positions, including Chief Executive Officer (Jan Erik Boers), Chief Operating Officer (Andreas Schelling), Chief Financial Officer (Neill Quinn), and Head Marketing (Peter Stock) and attempted to increase its stake in Sterling (Mohan 1998). However, by 1999, Swisscom had decided to sell its stake in India because of its attempts to focus on 'the Heart of Europe' strategy and the continuing delays and uncertainty in the Indian government's telecom policy.

BT, the UK's former national carrier was a late entrant into the cellular industry. While it had presence in other industries, such as V-SAT and electronic mail (Malik 1986), and had bid for cellular licences in 1992, it had not managed to enter the industry. As stated earlier, BT's entry into India was an unexpected outcome of its alliance with CGE whose subsidiary, General Mobile Company (GMC) had a stake in Bharti Cellular (BT acquires stake in Bharti Cellular 1997). However, it too exited India in 2001 to focus on its UK strategy and to reduce its debt. During this period, BT had borrowed heavily to bid for the UK 3G licence.

Arguably, the US telecom industry was better placed to enter the Indian market because of it had liberalised and privatised its operations earlier. In 1978, the US allowed competition in the sector and the national carrier, AT&T, was broken up into several independent companies in 1987. Two US communications companies, Hughes Electronic Corporation (HEC) and Alltel Corporation, joined the Indian business house, Ispat, to launch Hughes Ispat Limited (HIL). With HIL as the 51% equity partner, HEC held 34% stake and Alltel held 15%. The main strength of this joint venture was the technical expertise brought by HEC and Alltel.

HEC had strong capabilities in telecommunication networks, and Alltel had strong operational support capabilities such as systems and software for billing and customer support. The management of HIL was also strongly determined by HEC, who appointed a former HEC executive, Rajendra Patel, as CEO who brought his vast experience in telecommunications in the US and his Indian-origin credentials to the job.

The US major, AT&T formed two partnerships in entering India. Firstly, in 1994, it joined A.V. Birla to for Birla AT&T Communications, which won licences for Gujarat and Maharashtra. Subsequently, in 2000, it joined BPL to form BPL Cellular, which won licences for Maharashtra, Goa, Tamil Nadu and Kerala. The partnership with BPL became problematic because BPL/France Telecom had a separate joint venture for Mumbai (see above). However, as with the European markets, AT&T was facing challenges in the US. In 2004, it merged with Cingular Wireless, leading to consolidation in the US market. This refocusing strategy resulted in AT&T's exit from India.

Along with the US/European entrants, there were several Asian firms that participated in joint ventures. The Japanese national carrier's entry choice into India was through the wireline service. In contrast to the interest in cellular operations, NTT chose to partner with RP Goenka in bidding for the wireline license in Tamil Nadu in 1995. However, disagreements led to this license being forfeited in 1998.

By far the most successful entry was by Hutchinson, the Hong Kong-based telecom company. Hutchinson Max, the joint venture with Max India, bid for and won the license for Mumbai. It consolidated its position in India through a series of acquisitions, buying Sterling Cellular, Usha Martin Telecom and Aircel. Globally, Hutchinson has demonstrated the capability to create large telecom businesses and exit. Its strategy in Europe showcased its capability to grow the Orange brand, and subsequently sell off the business to Mannesmann in

2001. Similarly, after building the brand in India, Hutchinson sold the business to Vodafone in 2007.

The entry and exit of Australia's Telstra's followed a similar pattern to the European companies. They initially entered the industry with Modi, and received the license for Kolkata. As with the European companies, Telstra faced competition in its home market because of deregulation. Similarly, Telstra focused on the Asia-Pacific region and its home market, rather than invest in expanding its operations in India.

Conclusions

The Indian telecommunications industry has transformed remarkably, from the low teledensity, poor connectivity and long waiting lists for telephones, to a thriving and competitive market with advanced technology. While India's liberalisation and the regulatory changes in telecom have played an important part in facilitating this transformation, the Indian and foreign firms have played an important part in achieving this at the ground level. The aim of this article was to provide a firm-level perspective on the changes. Whereas previous research has focused on the regulatory and economic issues, I focused on the role of foreign firms. Focusing on the firm-level, we can see that firm capabilities are crucial in delivering the changes. Prior to liberalisation, the main capabilities that foreign firms needed were financial resources, technological expertise and, crucially, political capabilities to enable them to work with the Indian government. They also needed knowledge transfer capabilities, once they gained entry. Liberalisation led to the need for foreign firms to develop new capabilities. In particular, they needed to form joint ventures with Indian private companies, and provide technical knowledge and capital investment.

For foreign firms, India was one of the international markets that opened up as they faced competitive pressures in their home markets. Success/failure in the Indian market depended, not so much on the technical and financial capabilities, but on their ability to manage

the joint venture and to deal with the market uncertainties. Equally important, were the changes in the foreign firms' home markets and their capabilities to strengthen their positions in their domestic industry. The paper shows that firms were able to exercise strategic choice, leading to different approaches to their India entry/exit strategy. The European firms faced significant challenges in their home market, which impacted their India strategy. Several international mergers and alliances also led to different strategic choices made by US firms.

For foreign firms, two key capabilities stand out from their Indian experience. Firstly, foreign firms need political capabilities to understand and influence the institutional setting and understand the 'rules of the game'. Pre-liberalisation this was orchestrated through their connections with the Indian government, mediated by the home country government. In contrast, post-liberalisation, firms needed the capability to form and maintain joint ventures with Indian firms. The joint venture firms' political capabilities to navigate the changing regulatory environment played an important part in foreign firms' success. By demonstrating the interplay between financial, technological, joint venture, political and inter-organisational knowledge transfer capabilities that shaped the participation of foreign firms in the Indian telecommunications success story, I have highlighted the significance of a firm-level perspective. In so doing, I hope to stimulate further empirical research that investigates firm-level issues that drive internationalisation of industries across countries and over time.

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Figure 1: Theoretical Framework: A Firm-Level Perspective on Internationalization

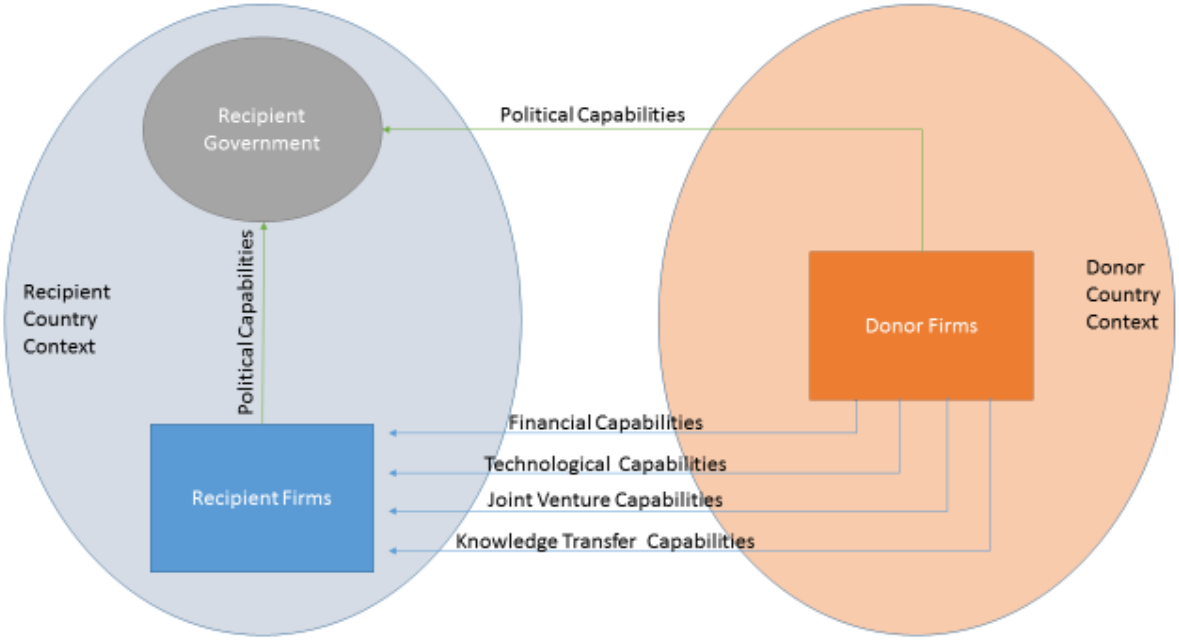

Table 1: Foreign Companies and Indian Partners in 1992

Foreign Partner	Indian Partner	Bidding Company
SFR France, Emtel Mauritius and Talkland UK	Bharti Tele-Ventures	Bharti Cellular
Bell South, USA	Crompton Greaves	Skycell
France Telecom, MaCaw Cellular, US and LCC Inc. US	BPL	BPL Telecom
Hutchinson, Hong Kong	Max	Hutchinson Max
Telecom Malaysia	Usha Martin	Usha Martin Telecom
Telecom Malaysia	Dalmiya	India Telecomp
Alta Telecom, Canada		
OIC Australia	Modi	Indian Telecom Ltd.
Vodafone	RPG	Mobile Telecom
Bell Canada Enterprises	Tata	Tata Cellular
Nynex, USA	Modi	Modi Telecom
Singapore Telecommunications	HCL	Mobile Comm
	Essar	Sterling Cellular

(Source: Tata Cellular v Union of India)

Table 2: Winners of 1995 bids for New Delhi, Mumbai, Kolkata and Chennai

Foreign Partner	Indian Partner	Company Name
Hutchinson, Hong Kong	Max India	Hutchinson Max
France Telecom	BPL	BPL Telecom
SFR, France	Bharti Tele-Ventures	Bharti Cellular
Cellular Communications International	Essar	Sterling
Malaysia Telecom	Usha Martin	Usha Martin Telecom
Telstra Australia	Modi	Modi Telstra
Bell South, USA	Crompton Greaves	Skycell
Vodafone	RPG	Mobile Telecom

Table 3: Major Foreign Equity Investors in Cellular Companies, Circa 1997

Investor	Country	Stake (%)	Cellular Company	Business House
National Incumbent				
AT&T	USA	49	Birla AT&T	Birla
NTT	Japan	49	Basic	RP Goenka
Telstra	Australia	47.6	Modi Telstra	Modi
MBT	Malaysia	40	Usha Martin Telecom	Rai
Bell Canada	Canada	39	Tata Teleservices	Tata
PTC	Philippines	34	Koshika	Rai
STET	Italy	33	Bharti Telenet	Bharti
Swiss PTT	Switzerland	30	Aircel Digilink	Sterling
France Telecom	France	26	BPL Mobile	BPL
Other Telephone Operators				
First Pacific	Hong Kong	49	Escotel	Escorts
Vodafone	UK	49	RPG Cellcom	RP Goenka
Hutchinson	Hong Kong	49	Hutchinson Max	Max

Jasmine	Thailand	49	J.T. Mobile	Parasrampuria
Media One	USA	49	BLP Cellular	BLP
Distacom	Hong Kong	39	Spice	Modi
Shinawatra	Thailand	33	Facel	Maloo-Nahata
BellSouth	USA	24.5	Skycell	Thapar
GMC	USA	22.5	Bharti Cellular	Bharti
Century USA	USA	19.5	Aircel	Sterling
Financiers				
Al Amin	Mauritius	49	Barakhamba	Sterling
AIG	USA	49	Tata Cellular	Tata
Cellfone	Mauritius	46	RPG Cellular	RP Goenka
Asia Pacific Infra	Hong Kong	39	Essar Commvision	Essar
Mobilvest	Mauritius	30	Sterling Cellular	Sterling
Reddington	Singapore	29	Aircel	Sterling
Emtel	Mauritius	17	Bharti Cellular	Bharti
Others				
Hughes Electronics	USA	49	Hughes Ispat	Ispat
Millicom	Luxembourg	24.5	Skycell	Thapar

(Source: Desai, 2006, p. 99)

Table 4: Privatisation of the European Telecom Industry and Liberalisation of their Markets

Domestic market	**Year of liberalisation**	**National operator**	**Year of privatisation**
United Kingdom	1984	British Telecom	1984
Italy	1997	Telecom Italia	1997
Switzerland	1997	Swiss PTT	1997
France	1998	France Telecom	1997